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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,086	02/25/2004	Shan-An Yang	BHT-3111-424	8531

7590 08/23/2007

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ART UNIT	**PAPER NUMBER**
2617	

MAIL DATE	DELIVERY MODE
08/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/785,086	YANG ET AL.	
	Examiner	Art Unit	
	Michael Faragalla	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 May 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the amendment filed on 05/29/2007. This action is made **FINAL.**

Response to arguments

2. The argued features, i.e., a method for adjusting a transmission rate of a wireless communication system comprising a transmitter and a receiver, the method comprising: transmitting a plurality of transmitted packets at the transmission rate by the transmitter; receiving a plurality of received packets corresponding to the transmitted packets by the receiver; determining a state parameter according to at least a characteristic determined by the transmitted packets and the received packets; and adjusting the transmission rate according to the state parameter; wherein the characteristic is determined according to a number of the transmitted packets and a number of the received packets, and the state parameter is a ratio determined by dividing the number of the received packets with the number of the transmitted packets read upon Boer et al in view of Girardeau et al and further in view of Srikrishna et al as follows.

Boer et al show modifying the transmission rate according to a quality characteristic. The examiner reads the rate before modifying as a first transmitted packets and the rate after modifying as the second transmitted packets. Therefore, Boer et al shows the limitation of "transmitting a plurality of transmitted packets at the transmission rate by

the transmitter". Boer et al show receiving the packets transmitted from the transmitter. Therefore, Boer et al disclose the limitation of "receiving a plurality of received packets corresponding to the transmitted packets by the receiver". Boer et al shows modifying transmission rate according to the signal quality. Therefore, Boer et al teach the limitations of "determining a state parameter according to at least a characteristic determined by the transmitted packets and the received packets", and "modifying the transmission rate according to the state parameter". Boer shows that the transmission rate is changed depending on the number of good or bad transmitted packets. Therefore, Boer et al disclose the limitation of "wherein the characteristic is determined according to a number of the transmitted packets and a number of received packets". However, Boer et al show modifying the transmission rate, but do not specifically show adjusting transmission. Therefore, the examiner has used Girardeau et al in order to show the adjustment of the transmission rate.

Furthermore, Boer et al in view of Girardeau et al show determining a state parameter according to at least a characteristic determined by the transmitted packets and the received packets, but do not specifically show that the state parameter is a ratio determined by dividing the number of the received packets with the number of the transmitted packets. Therefore, the examiner has used Srikrishna et al in order to show that using the step of determining a success ratio of received packets at a certain receiver as a parameter to base decisions of implementing a communication system is well known in the art. Therefore, Srikrishna et al disclose the limitation of "the state

parameter is a ratio determined by dividing the number of the received packets with the number of the transmitted packets.

The references used in this application are in related art, and therefore can be combined and used to show obviousness with respect to prior art.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims **1,2,4-8,10-16,19,21, and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Boer et al (publication number: US 2004/0101035)** in view of **Girardeau et al (Patent number: 7,099,398).**

Consider **Claim 1**, Boer et al clearly shows and discloses a method for modifying a transmission rate of a wireless communication system comprising a transmitter and a receiver (figure 1), the method comprising:

(a) Transmitting a plurality of transmitted packets at the transmission rate by the transmitter (figure 1; paragraphs 4,6,7,19 and 23).

(b) Receiving a plurality of received packets corresponding to the transmitted packets by the receiver (figure 1; paragraph 19).

(c) Determining a state parameter according to at least a characteristic determined by the transmitted packets and the received packets (paragraph 19 and 20; abstract); (the state parameter is read as signal quality characteristic).

(d) Modifying the transmission rate according to the state parameter (figure 1; paragraphs 4,6,7,19 and 23; abstract).

However, Boer et al show modifying the transmission rate but do not specifically show adjusting the transmission rate.

In the same field of endeavor, Girardeau et al clearly show adjusting the transmission rate (abstract; column 2, lines 47-67).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Girardeau et al into the teaching of Boer et al in order to ensure reliability of data transmission within a wireless communication system.

Consider **Claim 11**, Boer et al clearly shows and discloses a method for modifying a transmission rate of a wireless communication system comprising a transmitter and a receiver (figure 1), the method comprising:

(a) Transmitting a plurality of first transmitted packets at a first transmission rate and a plurality of second transmitted packets at a second transmission rate by the transmitter (figure 1; paragraphs 4,6,7,19 and 23); (based on signal quality characteristic, the transmission rate is modified. Therefore, the transmission rate before modifying is read as first transmission rate, and the transmission rate after modifying is read as second transmission rate).

(b) Receiving a plurality of first received packets corresponding to the first transmitted packets and a plurality of second received packets corresponding to the second transmitted packets by the receiver (figure 1; paragraph 19).

(c) Determining a first state parameter according to at least one first characteristic determined by the first transmitted packets and the first received packets (paragraph 19 and 20; abstract); (the state parameter is read as signal quality characteristic).

(d) Determining a second state parameter according to at least one second characteristic determined by the second transmitted packets and the second received packets (paragraphs 19, 20, and 23; abstract); (Boer et al show that modifying a data rate of the transmitter depends at leas in part on the signal quality, therefore, the first sent packets are sent at a rate different from the later sent packets).

(e) Modifying at least one of the first and the second transmission rates according to at least one of the first and second state parameters (figure 1; paragraphs 4,6,7,19 and 23; abstract).

However, Boer et al show modifying the transmission rate but do not specifically show adjusting the transmission rate.

In the same field of endeavor, Girardeau et al clearly show adjusting the transmission rate (abstract; column 2, lines 47-67).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Girardeau et al into the teaching of Boer et al in order to ensure reliability of data transmission within a wireless communication system.

Consider **Claim 2,** Boer et al as modified by Girardeau et al clearly show the method of claim 1 wherein the characteristic is determined according to a number of the transmitted packets and number of the received packets (paragraph 23).

Consider **Claim 4**, Boer et al as modified by Girardeau et al clearly show the method of claim 1 wherein the characteristic is determined according to the signal strength of the received packets paragraphs 19 and 20).

Consider Claim 5, Boer et al as modified by Girardeau et al clearly show the method of claim 4 wherein the state parameter is a value corresponding to the signal strength of the received packets (paragraphs 19 and 20).

Consider **Claims 6,** Boer et al as modified by Girardeau et al clearly show the method of claim 1 wherein the modifying step is performed according to a comparison result of the state parameter and at least a threshold value (paragraphs 43 and 44).

Consider **Claims 7 and 8,** Boer et al as modified by Girardeau et al clearly show the method of claim 6, wherein the modifying step further comprises increasing the transmission rate if the state parameter is larger than a first threshold, and further wherein the adjusting step further comprises decreasing the transmission rate if the state parameter is smaller than a second threshold (paragraphs 43 and 44).

Consider **Claims 10 and 22,** Boer et al as modified by Girardeau et al clearly show the method of claim 1, as well as the method of claim 11 wherein the characteristic is determined according to at least one of the number of times of transmitting the first and the second transmitted packets (paragraph 23); (the characteristic is read as the number of packets received at receiver side).

Consider **Claim 12,** Boer et al as modified by Girardeau et al clearly show the method of claim 11 wherein the modifying step is performed according to a comparison result of the first state parameter and a first threshold (paragraph 44).

Consider **Claim 13**, Boer et al as modified by Girardeau et al clearly show the method of claim 12 wherein the modifying step further comprises increasing at least one of the first and second transmission rates if the first state parameter is larger than the first threshold (paragraph 44).

Consider **Claim 14,** Boer et al as modified by Girardeau et al clearly show the method of claim 11 wherein the modifying step is performed according to a comparison result of the second state parameter and a second threshold (read as predefined number of packets) (paragraph 23).

Consider **Claim 15,** Boer et al as modified by Girardeau et al do not specifically show the method of claim 14 wherein the modifying step further comprises decreasing at least one of the first and the second transmission rates if the second state parameter is smaller than the second threshold.

However, in the same field of endeavor, Girardeau et al show that the method of claim 14 wherein the modifying step further comprises decreasing at least one of the first and the second transmission rates if the second state parameter is smaller than the second threshold (claim 5); (Girardeau et al show that the transmission rate is lowered if the first transmission rate did not give a satisfying error rate).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Girardeau et al into the teaching of Boer et al in order to ensure reliability of data transmission within a wireless communication system.

Consider **Claim 16**, Boer et al as modified by Girardeau et al clearly show the method of claim 11 wherein at least one of the first and second characteristic is determined by a

number of the first received packets and a number of the first transmitted packets (paragraph 23).

Consider **Claim 19,** Boer et al as modified by Girardeau et al clearly show the method of claim 11 wherein the characteristic is determined according to the signal strength of at least one of the first and the second received packets (paragraphs 19 and 20).

Consider **Claim 21,** Boer et al as modified by Girardeau et al clearly show the method of claim 11 wherein the first transmitted packets and the second transmitted packets are transmitted by turns (paragraphs 43 and 44).

5. Claims **3,17,18, 23-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Boer et al (publication number: US 2004/0101035)** in view of **Girardeau et al (Patent number: 7,099,398)** and further in view of **Srikrishna et al (publication number: US 2005/0129005).**

Consider **claim 3,** Boer et al as modified by Girardeau et al show the method of claim 2, but fail to specifically show that the state parameter is a ratio determined by dividing the number of received packets with the number of transmitted packets.

However, in related art, Srikrishna et al shows that the state parameter is a ratio determined by dividing the number of received packets with the number of transmitted packets (abstract).

Therefore, it would have been obvious to person skilled in the art at the time the invention was made to incorporate the teaching of Srikrishna et al into the teaching of Boer et al and Girardeau et al in order to analyze a quality of routing paths for a wireless network (Srikrishna et al, paragraph 7).

Consider **Claims 17 and 18,** Boer et al as modified by Girardeau et al show the method of claim 16, but fail to specifically show the first state parameter and the second state parameter is a ratio determined by dividing a number of the first and the second received packets with a number of the first and second transmitted packets.

However, in related art, Srikrishna et al shows that the first state parameter and the second state parameter is a ratio determined by dividing a number of the first and the second received packets with a number of the first and second transmitted packets (abstract).

Therefore, it would have been obvious to person skilled in the art at the time the invention was made to incorporate the teaching of Srikrishna et al into the teaching of Boer et al and Girardeau et al in order to analyze a quality of routing paths for a wireless network (Srikrishna et al, paragraph 7).

Consider **Claim 23,** Boer et al clearly shows and discloses a method for modifying a transmission rate of a wireless communication system comprising a transmitter and a receiver (figure 1), the method comprising:

(a) Transmitting a plurality of transmitted packets at the transmission rate by the transmitter (figure 1; paragraphs 4,6,7,19 and 23).

(b) Receiving a plurality of received packets corresponding to the transmitted packets by the receiver (figure 1; paragraph 19).

(c) Determining a state parameter according to at least a characteristic determined by the transmitted packets and the received packets, wherein the characteristic is determined according to a number of the transmitted packets and number of the received packets (Paragraphs 19, 20, and 23 abstract); (the state parameter is read as signal quality characteristic).

(d) Modifying the transmission rate according to the state parameter (figure 1; paragraphs 4,6,7,19 and 23; abstract).

However, Boer et al show modifying the transmission rate but do not specifically show adjusting the transmission rate.

In the same field of endeavor, Girardeau et al clearly show adjusting the transmission rate (abstract; column 2, lines 47-67).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Girardeau et al into the teaching of Boer et al in order to ensure reliability of data transmission within a wireless communication system.

However, Boer et al in view of Girardeau et al fail to specifically show that the state parameter is a ratio determined by dividing the number of received packets with the number of transmitted packets.

However, in related art, Srikrishna et al shows that the state parameter is a ratio determined by dividing the number of received packets with the number of transmitted packets (abstract).

Therefore, it would have been obvious to person skilled in the art at the time the invention was made to incorporate the teaching of Srikrishna et al into the teaching of Boer et al and Girardeau et al in order to analyze a quality of routing paths for a wireless network (Srikrishna et al, paragraph 7).

Consider **Claim 24,** Boer et al as modified by Girardeau et al and as further modified by Srikrishna et al clearly show the method of claim 23 wherein the modifying step is performed according to a comparison result of the first state parameter and at least a threshold value (paragraph 44).

Consider **Claim 25,** Boer et al as modified by Girardeau et al and as further modified by Srikrishna et al clearly show the method of claim 24 wherein the modifying step further comprises increasing the transmission rate if the state parameter is larger than a first threshold (paragraph 44).

Consider **Claim 26,** Boer et al as modified by Girardeau et al and as further modified by Srikrishna et al clearly show the method of claim 24, wherein the adjusting step further comprises decreasing the transmission rate if the state parameter is smaller than a second threshold (paragraph 44).

6. Claims **9 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Boer et al (publication number: US 2004/0101035)** in view of **Girardeau et al (Patent number: 7,099,398)** and further in view of **Adachi (Publication number: 2001/0022806).**

Consider **Claims 9 and 20,** Boer et al as modified by Girardeau et al show the method of claim 1, as well as the method of claim 11, but fail to specifically show that the step of determining whether to use a RTS/CTS mechanism according to at least one of the first and second state parameters.

However, in related art, Adachi shows that the step of determining whether to use a RTS/CTS mechanism according to at least one of the first and second state parameters (paragraph 110).

Therefore, it would have been obvious to a person skilled in the art at the time the invention was made to incorporate the teaching of Adachi into the teaching of Boer et al and Girardeau et al in order to improve the throughput of the network system (Adachi, abstract).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Faragalla whose telephone number is (571) 270-1107. The examiner can normally be reached on Mon-Fri 7:30 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nick Corsaro can be reached on (571) 272-7876. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael Faragalla

08/07/2007

JOSEPH FEILD
SUPERVISORY PATENT EXAMINER